Claims

1. (Cancelled)

2. (Cancelled)

3. (Currently Amended)   A method for treating sleep disordered breathing by controlling a machine to apply breathable gas at positive pressure to the airway of a patient comprising the steps of:

determining the patient's arousal index for use in an outer loop of a control algorithm, the arousal index being calculated from a size of the patient's breath and being a measure of the frequency of sleep arousals,

monitoring the patient's respiratory airflow signal in an inner loop of said control algorithm to detect an airway obstruction,

said control algorithm being used to adjust the positive pressure applied by said machine,

if said arousal index is above a particular threshold, then increasing the sensitivity of detection of the obstruction and/or the aggressiveness of the treatment, and

if the arousal index is below a particular threshold, then decreasing the sensitivity of detection of the obstruction and/or the aggressiveness of the treatment,

in accordance with claim 2 wherein said arousal index is determined to be high by monitoring a flow rate over a sequence of breaths and checking whether the sequence is followed by a large breath.

4. (Original)   A method for treating sleep disordered breathing in accordance with claim 3 wherein a patient's breath is considered to be large if it is twice as large as previous breaths.

5. (Currently Amended)   A method for treating sleep disordered breathing in accordance with claim 1 claim 3 wherein a sleep arousal is determined by a Continuous Positive Airway Pressure (CPAP) apparatus detecting a post apnea sigh or yawn.

6. (Currently Amended)   A method for treating sleep disordered breathing in accordance with ~~claim 1~~ claim 3 wherein obstruction detection is a function of average airflow shape and the sensitivity of obstruction detection is increased by reducing a number of breaths in the average.

7. (Original)   A method for treating sleep disordered breathing in accordance with claim 6 wherein if increasing the sensitivity of obstruction detection does not improve the patient's condition, then a threshold level necessary to increase the treatment pressure in the inner loop is adjusted to make it more sensitive.

8. (Currently Amended)   A method for treating sleep disordered breathing in accordance with ~~claim 1~~ claim 3 wherein a threshold level necessary to increase a treatment pressure in the inner loop is adjusted in order to change the sensitivity of obstruction detection.

9. (Currently Amended)   A method for treating sleep disordered breathing in accordance with ~~claim 1~~ claim 3 wherein a time constant of decay of a treatment pressure in the inner loop is increased in order to increase aggressiveness of treatment.

10. (Currently Amended)   A method for treating sleep disordered breathing in accordance with ~~claim 1~~ claim 3 wherein incremental changes in a treatment pressure in the inner loop are increased in order to increase aggressiveness of treatment.

11 - 14. (Cancelled)

15. (Currently Amended)   An apparatus for treating sleep disordered breathing comprising:

    a controller for (a) determining a patient's arousal index for use in an outer loop of a control algorithm, the arousal index being calculated by said controller from the size of a patient's breath and being a measure of the frequency of sleep arousals, and (b)

monitoring the patient's respiratory airflow signal in an inner loop of said control algorithm to detect an airway obstruction, and

means responsive to said arousal index being above a particular threshold for increasing the sensitivity of the obstruction detection and/or the aggressiveness of the treatment, and responsive to said arousal index being below a particular threshold for decreasing the sensitivity of the obstruction detection and/or the aggressiveness of the treatment, ~~in accordance with claim 14~~ wherein said controller determines the arousal index to be high by monitoring a flow rate over a sequence of breaths and checking whether the sequence is followed by a large breath.

16. (Original) An apparatus for treating sleep disordered breathing in accordance with claim 15 wherein said controller considers a patient's breath to be large if it is twice as large as previous breaths.

17. (Currently Amended)   Apparatus for treating sleep disordered breathing in accordance with ~~claim 13~~ claim 15 wherein said controller uses a Continuous Positive Airway Pressure (CPAP) apparatus to determine a sleep arousal by detecting a post apnea sigh or yawn.

18. (Currently Amended)   Apparatus for treating sleep disordered breathing in accordance with ~~claim 13~~ claim 15 wherein said controller detects an obstruction as a function of average airflow shape and increases the sensitivity of obstruction detection by reducing a number of breaths in the average.

19. (Original) Apparatus for treating sleep disordered breathing in accordance with claim 18 wherein if increasing the sensitivity of obstruction detection does not improve the patient's condition, then the controller adjusts a threshold level necessary to increase the treatment pressure in the inner loop to make it more sensitive.

20. (Currently Amended)   Apparatus for treating sleep disordered breathing in accordance with ~~claim 13~~ claim 15wherein said controller adjusts a threshold level

necessary to increase a treatment pressure in the inner loop in order to change the sensitivity of obstruction detection.

21. (Currently Amended)   Apparatus for treating sleep disordered breathing in accordance with ~~claim 13~~ claim 15 wherein said controller increases a time constant of decay of a treatment pressure in the inner loop in order to increase aggressiveness of treatment.

22. (Currently Amended)   Apparatus for treating sleep disordered breathing in accordance with ~~claim 13~~ claim 15 wherein said controller increases incremental changes in a treatment pressure in the inner loop in order to increase aggressiveness of treatment.

23 - 36. (Cancelled).

37 - 48. (Cancelled)

49 - 55. (Cancelled)

56 - 62. (Cancelled)